May 2015 Regional Climate Summary

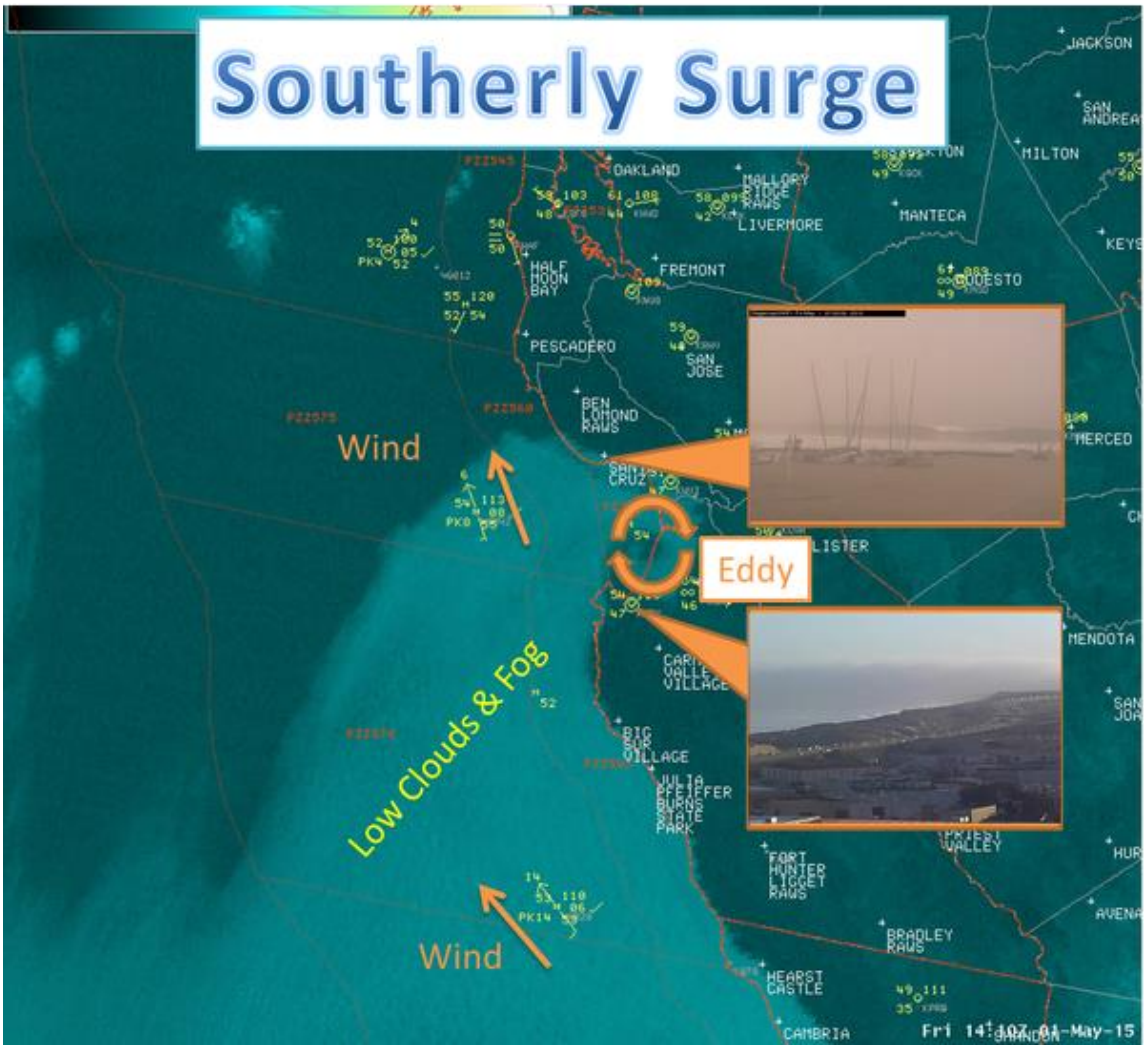
For the San Francisco Bay Area and Monterey Bay Area

May 2015 was the first cooler-than-normal month in more than a year. In fact, the last time in which the San Francisco Bay Area and Monterey Bay Area experienced widespread below normal average monthly temperatures was December 2013 – or fifteen months ago! During much of that intervening time, from mid-July 2014 through mid-March 2015, warmer than normal sea surface temperatures along the California coast contributed to our warm weather. In addition, a very persistent upper level high pressure ridge over the Eastern Pacific and West Coast contributed to this prolonged warm spell, particularly during the winter months. The upper ridge was replaced by a weak upper trough for most of May 2015, and sea surface temperatures, which had dropped back to near normal or even slightly below normal by April 2015, remained cool through May.

There were only two notable precipitation events during May, both of them convective in nature. Four climate stations across the region managed to accumulate above normal monthly rainfall totals from these two events. All other locations ended the month with below normal precipitation, and some North and East Bay locations received no measurable rain at all.

May Temperatures:

Warmth at the end of April continued into the first day of May. A "southerly surge" occurred during the morning of Friday, May 1st, when low clouds and fog advanced northward up the coast.



7 am visible satellite image on May 1 showing a southerly surge in progress.

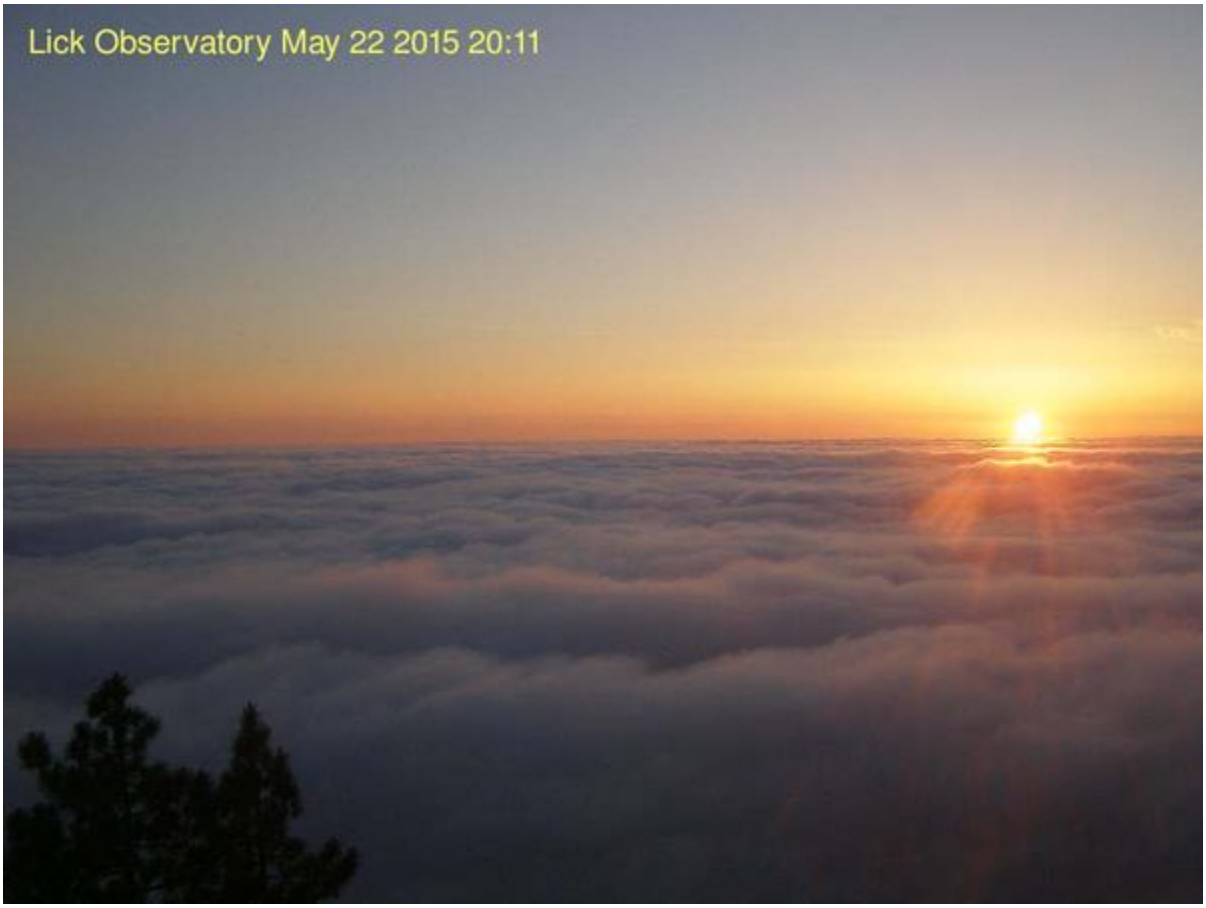
The southerly surge on the first day of May resulted in cooling near the coast, but inland areas remained warm. May 1 ended up being the warmest day of the month at most climate stations. An upper level trough persisted near the west coast for much of the remainder of the month, resulting in widespread night and morning low clouds, local coastal drizzle, and cooler-than-normal daytime highs. In fact, May 1st was the only day during the month in which daytime temperatures were above normal. Temperatures were below normal, or near normal, for all remaining May days.

Downtown San Francisco's temperature remained below 70 degrees during the entire month of May. The high temperature in the City on the warmest day of the month (May 1) was 68 degrees F. San Francisco's average high temperature for May was only 60.3 degrees. This represents the 11th coolest average May high temperature in recorded weather history for Downtown San Francisco. San Jose's average monthly high of 68.6 was their 7th coolest. Temperature records at Downtown San Francisco and San Jose go back 141 years and 116 years respectively.

For the first time in recorded history, the average high temperature in San Francisco during May (60.3 degrees F) was cooler than all four previous months of the calendar year: April (63.7), March (67.5), February (65.8) and January (61.9).

Widespread low cloud cover on most May nights helped hold minimum temperatures up to some extent. Average low temperatures for the month were actually above normal at the majority of climate stations. However, cool daytime temperatures more than offset the slightly warmer-than-normal nights, resulting in average monthly temperatures that were below normal at nearly all climate stations.

There were no daily high or low temperature records during May 2015.



Sunset photo taken from Lick Observatory on Mount Hamilton on May 22nd, showing widespread low clouds associated with a deep marine layer. A deep and persistent marine layer was a dominate weather feature across the region during May, particularly during the final ten days of the month.

May Regional Temperature Summary

Location	Average High	Normal High	Departure from Normal	Average Low	Normal Low	Departure from Normal
North Bay						
Angwin	72.6	73.8	-1.2	45.5	47.2	-1.7
Calistoga	72.0	78.7	-6.7	48.3	46.3	2.0
Cloverdale	78.7	80.3	-1.6	48.8	50.2	-1.4
Kentfield	69.6	73.5	-3.9	49.5	49.0	0.5
Napa	71.7	76.2	-4.5	49.8	49.6	0.2
Napa Airport	67.9	72.6	-4.7	47.7	45.5	2.2
Occidental	67.0	71.1	-4.1	45.4	47.9	-2.5
Petaluma Airport	69.0	72.9	-3.9	47.7	47.3	0.4
Saint Helena	75.4	78.8	-3.4	50.3	49.5	0.8
San Rafael	69.4	70.7	-1.3	50.5	50.1	0.4
Sonoma County Airport	72.1	74.5	-2.4	47.5	46.4	1.1
San Francisco Peninsula						
Palo Alto	70.8	74.3	-3.5	50.4	48.7	1.7
Redwood City	68.6	73.6	-5.0	51.6	50.0	1.6
San Francisco Airport	64.1	67.6	-3.5	52.9	51.6	1.3
San Francisco Downtown	60.3	64.3	-4.0	51.1	51.0	0.1
East Bay						
Antioch	76.2	79.2	-3.0	51.8	53.5	-1.7
Berkeley	66.6	69.7	-3.1	50.2	49.4	0.8
Concord	72.5	77.3	-4.8	52.7	52.9	-0.2
Concord Airport	73.1	76.3	-3.2	52.7	51.7	1.0
Fremont	66.8	71.9	-5.1	52.1	51.6	0.5
Hayward Airport	64.3	68.5	-4.2	52.9	52.6	0.3
Livermore	72.4	76.9	-4.5	50.3	50.2	0.1
Livermore Airport	72.9	75.3	-2.4	52.8	49.4	3.4
Martinez	75.2	78.8	-3.6	47.6	46.4	1.2
Mount Diablo Junction	64.5	70.5	-6.0	46.1	48.9	-2.8
Newark	66.7	70.8	-4.1	54.3	53.2	1.1
Oakland	64.1	68.7	-4.6	52.3	52.7	-0.4
Oakland Airport	63.9	67.7	-3.8	51.1	52.0	0.9
Richmond	63.8	68.8	-5.0	51.6	52.1	-0.5
South Bay and Santa Cruz County						
Ben Lomond	75.8	76.5	-0.7	42.4	45.3	-2.9
Los Gatos	71.5	75.6	-4.1	49.0	48.7	0.3
Moffett Federal Airfield	66.6	72.2	-5.6	52.4	53.2	-0.8
Mount Hamilton	60.6	62.6	-2.0	46.3	47.6	-1.3
San Jose	68.6	74.3	-5.7	52.7	52.4	0.3
Santa Cruz	71.2	71.9	-0.7	50.3	48.9	1.4
Watsonville	65.9	69.2	-3.3	51.2	48.9	2.3
Watsonville Airport	64.6	70.0	-5.4	49.2	47.6	1.6

Monterey and San Benito Counties	Average High	Normal High	Departure from Normal	Average Low	Normal Low	Departure from Normal
Big Sur Station	64.9	72.6	-7.7	45.7	45.8	-0.1
Carmel Valley	66.7	72.7	-6.0	47.4	46.1	1.3
Hollister	69.0	74.5	-5.5	49.4	47.7	1.7
King City	73.8	79.2	-5.4	47.5	47.1	0.4
Monterey	60.5	63.0	-2.5	50.2	48.1	2.1
Monterey Airport	62.0	63.5	-1.5	52.0	49.9	2.1
Pinnacles National Park	77.9	79.8	-1.9	41.7	43.0	-1.3
Salinas	66.0	68.1	-2.1	50.8	48.2	2.6
Salinas Airport	65.1	68.4	-3.3	53.5	50.3	3.2

Daily Temperature Records for May 2015			
Date	**Location**	**Record Max Temp**	**Previous Record and Year**
	No daily records during May 2015		

May Precipitation:

There were two notable precipitation events during May 2015. The first was on Thursday, May 7 and the second one week later on Thursday, May 14. Both events consisted of scattered precipitation, with rainfall amounts varying considerably across the region.

On May 7 an upper low dropped south out of the Pacific northwest and into California. Light showers began to move into the San Francisco Bay Area at 7 am that morning and by 7:45 am there were multiple reports of small hail near Fremont.

Small hail that fell in Fremont on the morning of May 7. Photo: Mellia Avery

By mid-morning showers were moving through the South Bay and thunder was heard in San Jose. A band of showers continued to press south through the southern Santa Clara Valley and Santa Cruz County.

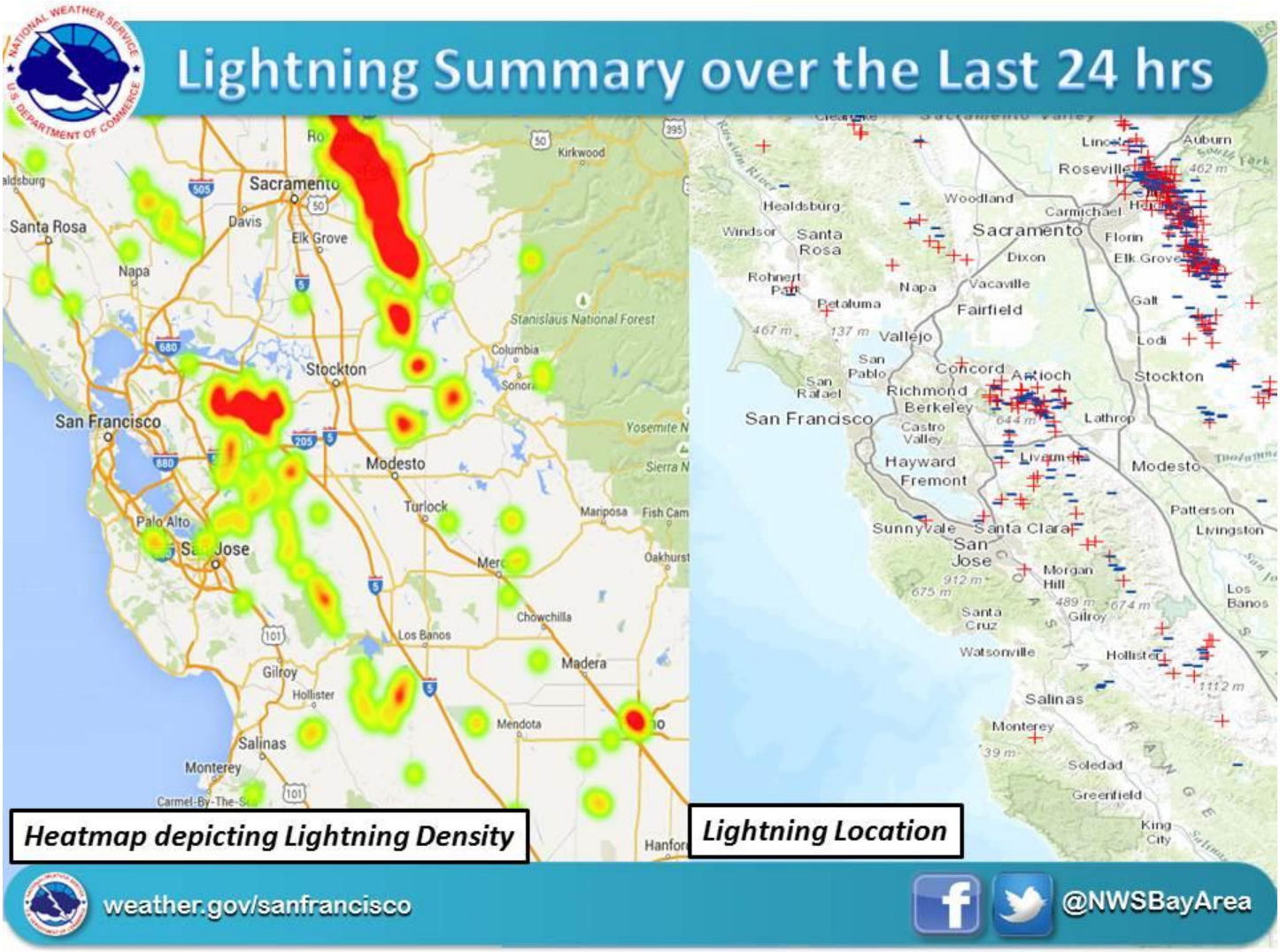
Showers lingered through the evening of May 7, resulting in some excellent opportunities for rainbow photos.

Rainbow over the San Jose State campus on the evening of May 7. Photo: SJSU Meteorology Department Web Cam

Rainbow near Altamont Pass on the evening of May 7. Photo: John Eaton

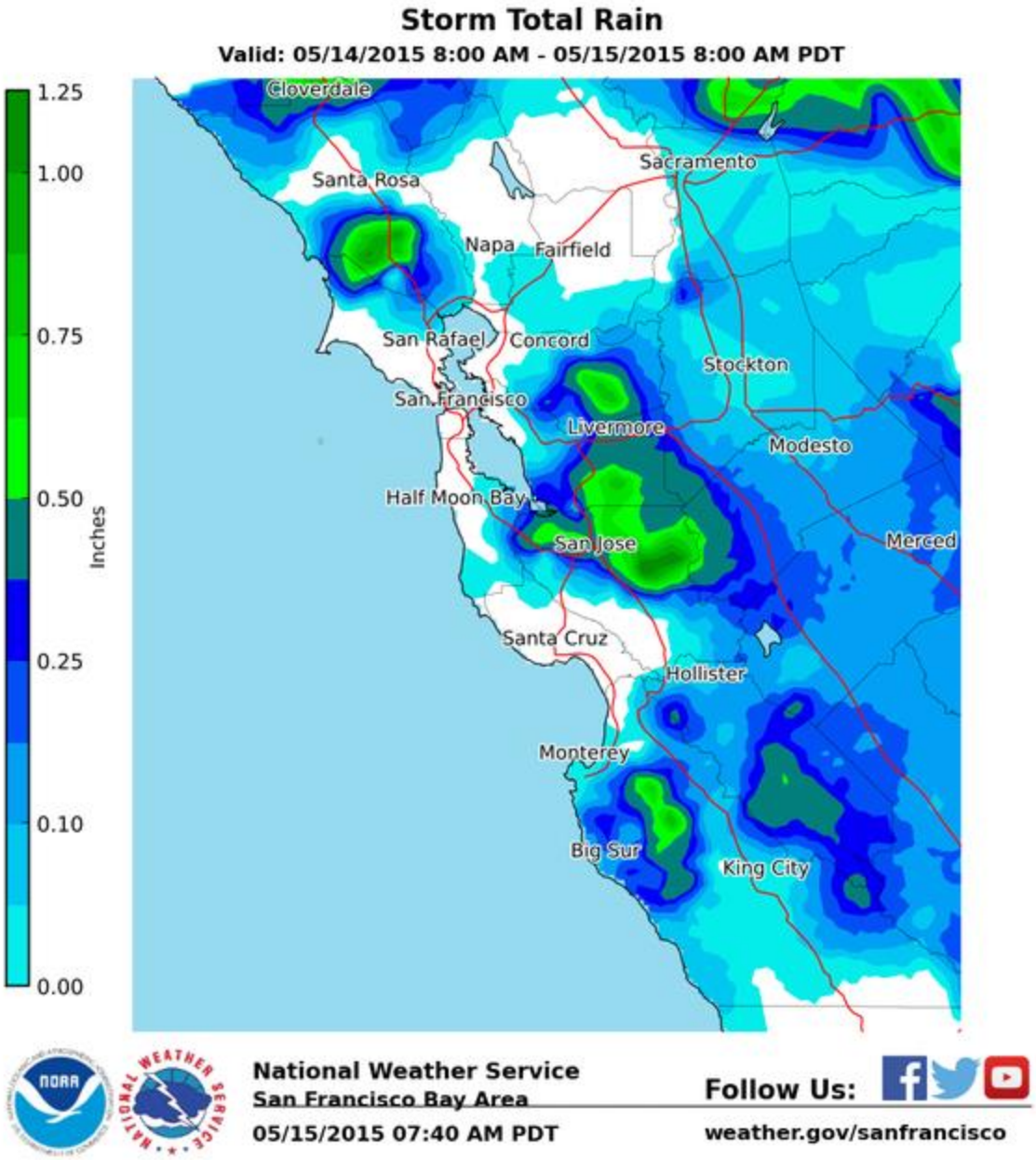
Rainfall with the May 7 weather system was mostly confined to areas south of San Francisco and Oakland. And, at those locations where measurable rain did occur, amounts were mostly less than a quarter of an inch. A notable exception was Hollister where 0.64" fell on the 7th.

An upper trough deepened along the West Coast on Thursday, May 14. Showers began to move onshore by late morning, and heavy showers and isolated thunderstorms with small hail were reported in northwestern Santa Clara County at 11:45 am. These showers and thunderstorms produced brief heavy rain. Minor flooding was reported along Interstate 280 near Los Altos. Thunderstorms occurred at several other locations across the region on the 14th, but were most numerous over the East Bay, particularly across eastern Contra Costa County and eastern Alameda County.



Lightning maps depicting both lightning density and lightning location on May 14.

Because all of the precipitation on May 14 was convective in nature, rainfall totals that day varied considerably from one location to the next. In what was referred to as a "feast or famine" rain event, some locations in the East and South Bay picked up more than an inch of rain, while many other locations such as Santa Rosa, San Rafael, San Francisco, Oakland and Santa Cruz received no rain at all.

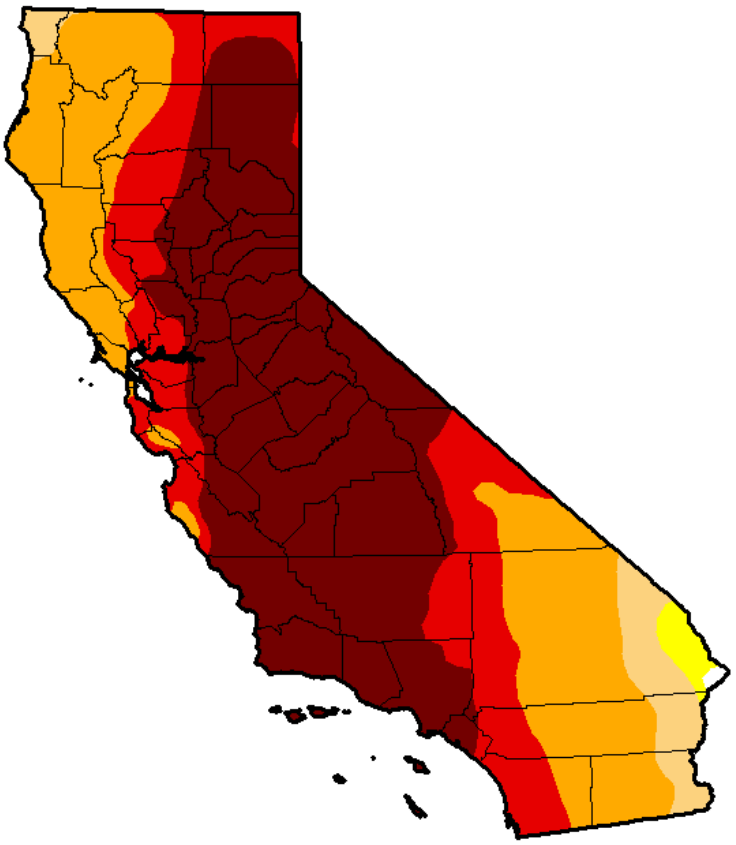


Map depicting rainfall totals for Thursday, May 14, when convective precipitation resulted in large rainfall gradients over short distances.

May 7 and 14 were not the only days in which rain occurred during the month. However, the bulk of May's precipitation fell during these two events. Very light precipitation also occurred at various times between May 20 and 26. But most of the precipitation during the final third of the month was in the form of drizzle falling from a deep and persistent marine layer, and typically only amounted to a few hundredths at any one time. All of Downtown San Francisco's May precipitation (0.09") came in the form of very light rain or drizzle during this period of time. In addition, there were some isolated light rain showers in Santa Cruz and Monterey Counties on May 20 and 21, which also resulted in localized light amounts of precipitation.

Because most of May's rainfall was convective in nature, precipitation totals for May ran the gamut from zero across much of the North Bay to more than twice normal in Hollister. Only four locations accumulated more than their normal May rainfall (Hollister, Palo Alto, Moffett Field and Livermore). Rain totals at all other climate stations were below normal. In general, the southern portion of the region fared rather well, while the northern portion came up well short of 30-year averages. By the end of May drought conditions remained unchanged, with drought classification as of May 26 ranging from "severe" to "exceptional" across the region.

U.S. Drought Monitor
California



May 26, 2015

(Released Thursday, May. 28, 2015)

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.14	99.86	98.71	93.91	66.60	46.73
Last Week 5/19/2015	0.14	99.86	98.28	93.91	66.60	46.77
3 Months Ago 2/24/2015	0.16	99.84	98.10	93.44	67.46	39.92
Start of Calendar Year 12/30/2014	0.00	100.00	98.12	94.34	77.94	32.21
Start of Water Year 9/30/2014	0.00	100.00	100.00	95.04	81.92	58.41
One Year Ago 5/27/2014	0.00	100.00	100.00	100.00	76.68	24.77

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Brad Rippey
U.S. Department of Agriculture

http://droughtmonitor.unl.edu/

Drought conditions across California as of May 26, 2015.

May Precipitation Summary

Location	May Rainfall	Normal May Rainfall	Percent of Normal
North Bay			
Angwin	0.00	1.53	0
Calistoga	0.01	1.40	1
Cloverdale	0.08	1.44	6
Kentfield	0.01	1.48	1
Muir Woods	0.16	1.37	12
Napa	0.02	1.03	2
Napa Airport	0.00	0.82	0
Occidental	0.08	2.15	4
Petaluma Airport	0.37	0.87	43
Saint Helena	0.04	1.30	3
San Rafael	0.00	0.89	0
Sonoma County Airport	0.00	1.33	0

San Francisco Peninsula	May Rainfall	Normal May Rainfall	Percent of Normal
Half Moon Bay	0.11	0.98	11
Palo Alto	0.49	0.48	102
Redwood City	0.04	0.47	9
San Francisco Airport	0.02	0.47	4
San Francisco Downtown	0.09	0.70	13
East Bay			
Antioch	0.01	0.43	2
Berkeley	0.04	0.86	5
Concord	0.09	0.58	16
Concord Airport	0.04	0.54	7
Fremont	0.26	0.49	53
Hayward Airport	0.05	0.55	9
Livermore	0.50	0.48	104
Livermore Airport	0.47	0.62	76
Martinez	0.05	0.60	8
Mount Diablo Junction	0.50	1.06	47
Newark	0.38	0.48	79
Oakland	0.06	0.77	8
Oakland Airport	0.00	0.68	0
Richmond	0.00	0.75	0
South Bay & Santa Cruz County			
Ben Lomond	0.23	1.23	19
Los Gatos	0.08	0.54	15
Moffett Federal Airfield	0.64	0.47	136
Mount Hamilton	0.73	1.11	66
San Jose	0.50	0.51	98
Santa Cruz	0.10	0.84	12
Watsonville	0.19	0.60	32
Watsonville Airport	0.21	0.63	33
Monterey and San Benito Counties			
Big Sur Station	0.36	1.05	34
Carmel Valley	0.30	0.51	59
Hollister	0.90	0.40	225
King City	0.30	0.31	97
Monterey	0.43	0.56	77
Monterey Airport	0.29	0.50	58
Pinnacles National Park	0.50	0.52	96
Salinas	0.27	0.45	60
Salinas Airport	0.20	0.35	57

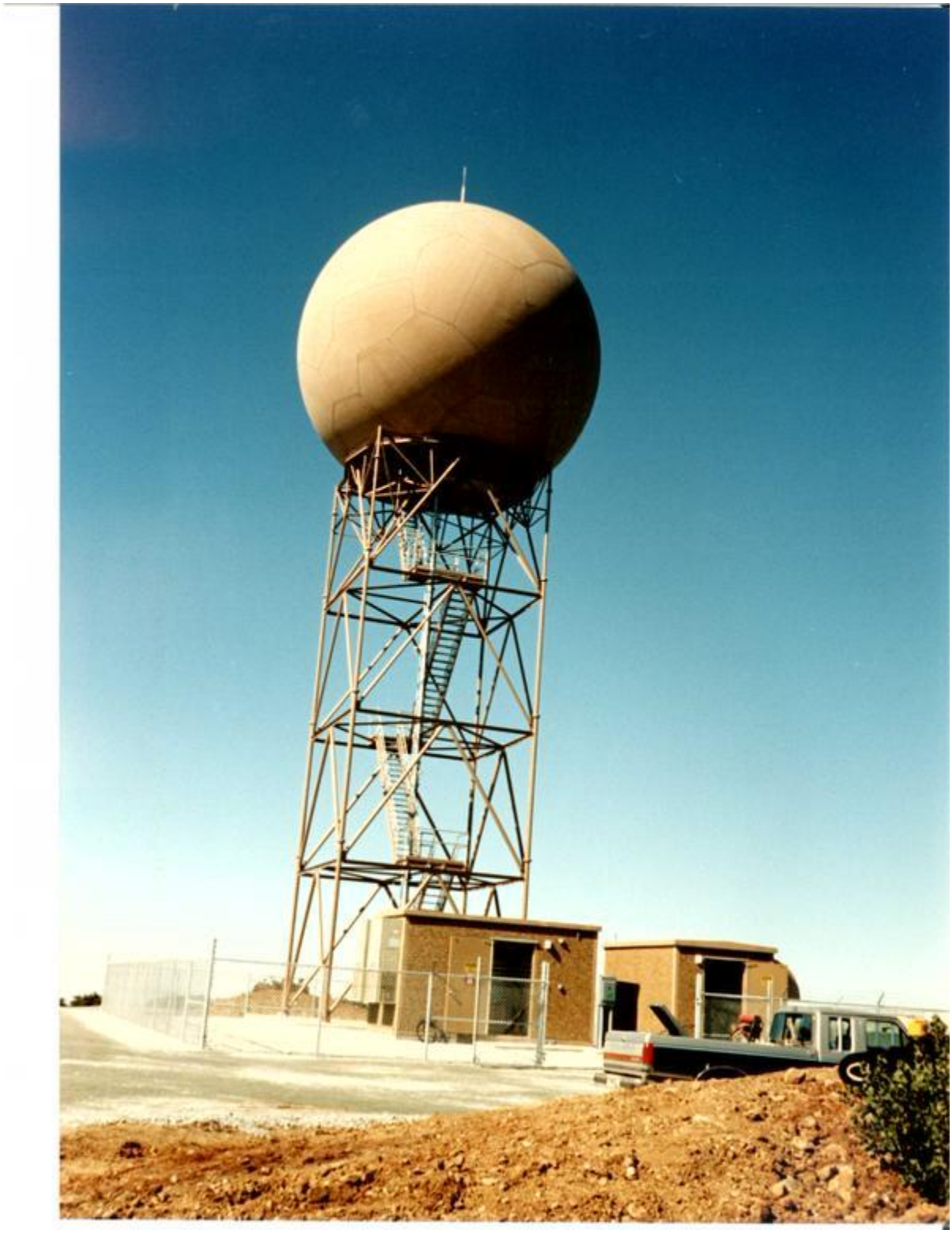
Miscellaneous May Climate Information:

Monthly Ranks for Downtown San Francisco		
Average High Temperature	60.3 deg	11th coolest May out of 141 years
Average Low Temperature	51.1 deg	57th warmest May out of 141 years
Average Mean Temperature	55.7 deg	29th coolest May out of 141 years
Precipitation	0.09 in	45th driest May out of 166 years

Monthly Extremes for Select Locations			
Location	Max Temp: Warmest Day(s)	Min Temp: Coolest Day(s)	Precipitation: Wettest Day(s)
Sonoma County Airport	5/01	5/06	n/a
	81 degrees	39 degrees	
San Francisco	5/01	5/06, 5/10, 5/12	5/20, 5/21
	68 degrees	49 degrees	0.03”
Livermore Airport	5/01	5/08	5/14
	90 degrees	45 degrees	0.42”
San Jose	5/01	5/12	5/14
	84 degrees	46 degrees	0.47”
Salinas Airport	5/01	5/08	5/07
	69 degrees	49 degrees	0.11”

WSR-88D (Nexrad) Radar (KMUX) 20th Anniversary

May 3, 2015 marked the 20th anniversary of the commissioning of the WSR-88D radar for the San Francisco Bay Area.



The KMUX WSR-88D radar, located at an elevation of 3500 feet in the Santa Cruz Mountains, celebrated its 20th birthday in May.

Note: This climatological data is preliminary. For official certified climatological data please contact the National Climatic Data Center at 828-271-4800 or http://www.ncdc.noaa.gov.
Official values as determined at the above web site may take several months for authentication and publication.